

Title (en)  
A NEGATIVE IMPEDANCE CIRCUIT AND CORRESPONDING DEVICE

Title (de)  
SCHALTUNG MIT NEGATIVER IMPEDANZ UND ENTSPRECHENDE VORRICHTUNG

Title (fr)  
PROCÉDÉ D'IMPÉDANCE NÉGATIVE ET DISPOSITIF CORRESPONDANT

Publication  
**EP 3683963 A1 20200722 (EN)**

Application  
**EP 20151228 A 20200110**

Priority  
IT 201900000883 A 20190121

Abstract (en)  
A negative impedance circuit comprises:- a differential circuit stage (10) having a first input, a second input and an output,- a positive feedback path (A) from the output to the first input of the differential circuit stage (10),- a negative feedback path (B) from the output to the second input of the differential circuit stage (10). The negative feedback path (B) comprises a unitary gain path from the output to the second input of the differential circuit stage (10), the unitary gain path being coupled to ground (GND) via a reference impedance ( $Z_{\text{REF}}$ ). The negative feedback path (B) and the positive feedback path (A) comprise a first transistor (M1) and a second transistor (M2) having respective control electrodes driven by the output of the differential circuit stage (10) with the first transistor (M1) and the second transistor (M2) coupled in a current mirror arrangement, wherein a negative impedance ( $Z_{\text{NEG}}$ ) is available at the first input of the differential circuit stage (10).

IPC 8 full level  
**H03F 1/56** (2006.01); **H03F 3/45** (2006.01); **H03F 3/50** (2006.01); **H03H 11/52** (2006.01)

CPC (source: CN EP US)  
**B06B 1/0223** (2013.01 - US); **B06B 1/06** (2013.01 - US); **H03F 1/56** (2013.01 - EP); **H03F 3/45183** (2013.01 - EP); **H03F 3/45475** (2013.01 - US); **H03H 11/52** (2013.01 - CN EP US); **H03F 2200/129** (2013.01 - US); **H03F 2200/156** (2013.01 - US); **H03F 2200/222** (2013.01 - EP); **H03F 2200/369** (2013.01 - EP); **H03F 2203/45116** (2013.01 - US); **H03F 2203/45676** (2013.01 - EP)

Citation (search report)

- [XAI] US 5767722 A 19980616 - KASHA DAN B [US], et al
- [A] US 2013038409 A1 20130214 - COONEY PADRAIG [US]
- [A] US 2003234684 A1 20031225 - OPPELT RALPH [DE]
- [A] JP S62130012 A 19870612 - ADVANTEST CORP

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 3683963 A1 20200722**; **EP 3683963 B1 20210630**; CN 111464150 A 20200728; CN 211908756 U 20201110; US 11484910 B2 20221101; US 2020230648 A1 20200723

DOCDB simple family (application)  
**EP 20151228 A 20200110**; CN 202010044159 A 20200115; CN 202020084621 U 20200115; US 202016747197 A 20200120